

TEACHERS' RETIREMENT BOARD

INVESTMENT COMMITTEE

SUBJECT: Fixed Income – High Yield Bond Report

ITEM NUMBER: 6

ATTACHMENT(S): 1

ACTION: X

DATE OF MEETING: March 8, 2000

INFORMATION: _____

PRESENTER(S): Ms. Cunningham
PCA, Mr. Emkin

EXECUTIVE SUMMARY

At the Asset Allocation Workshop completed by the California State Teachers' Retirement System (CalSTRS, System) Investment Committee in August 1999, it was decided that further exploration of the diversification and potential return enhancement benefits of its fixed income exposure be reviewed. To increase diversification and add incremental return to the System's fixed income holdings, staff was directed to review and report on the inclusion of High Yield Bonds. CalSTRS has never made an allocation to High Yield Bonds. High Yield Bonds are those bonds rated below investment grade (i.e., bonds rated below Baa3/BBB-), as recognized by the two major rating agencies: *Moody's* and *Standard & Poor's*. The universe of High Yield Bonds includes bonds rated anywhere from Ba1/BB+, to as low as C/D, meaning highly speculative as to whether the bond will pay either principal or interest.

The asset allocation adopted in September 1999, allocated 26% of the System's total assets to domestic fixed income. As of December 31, 1999, the market value of the Fixed Income Portfolio was approximately \$25 billion, with \$9.0 billion in Treasury and Agency securities, \$8.0 billion in Mortgage-Backed Securities (MBS), and \$8.0 billion in investment grade Corporate Bond securities. The Fixed Income Portfolio is of very high quality, in that nearly 70% is either government-guaranteed or rated AAA.

One of the 1999/00 goals and objectives established for the Investment Branch is to explore, evaluate, and present a report on the inclusion of High Yield Bonds in CalSTRS' Fixed Income Portfolio. As a first step in that process, staff and Pension Consulting Alliance (PCA) made a presentation to the Investment Committee in November 1999, that included an historic overview of High Yield Bonds, along with the role they play in the fixed income markets. The research demonstrated that there is the potential for High Yield Bonds to add value to the CalSTRS domestic Fixed Income Portfolio. As a result, at the conclusion of the November 1999 presentation, staff and PCA recommended that further analysis be conducted regarding implementation options for High Yield Bonds for the Investment Committee's consideration and direction.

If the Investment Committee were to approve an allocation to High Yield Bonds, there are several key implementation considerations that must be addressed. **Attachment 1** describes these key implementation considerations, including what percentage of the Fixed Income Portfolio should be in High Yield Bonds, whether the assets should be managed on an active or passive basis, what an appropriate performance benchmark might be, and whether the assets should be managed internally, externally, or some combination of the two.

RECOMMENDATIONS

Staff and PCA agree on the implementation options regarding High Yield Bonds for the Investment Committee's consideration and direction:

Asset Allocation – Given the impact on the risk/return profile of the CalSTRS Fixed Income Portfolio, CalSTRS should allocate a market-weighted proportion of its strategic allocation to Public Debt (which is currently 5%) to High Yield Bonds. It is anticipated that this allocation will move as the market-weights change.

Management Style – Given the inefficiencies within the High Yield Bond market, the assets be managed on an active basis.

Performance Benchmark – CalSTRS should select the Salomon Brothers High Yield Market Cash-Pay Index as it's High Yield Bond performance benchmark, yet retain the Salomon Brothers Large Pension Fund Index as the performance benchmark for the Public Debt asset class at this time. Attribution will be performed in order to measure the value added/lost by the allocation to High Yield Bonds.

Asset Management – A portion of the High Yield Bond allocation be managed externally, and a portion of the allocation be managed internally.

Additional Resources - Approval of these implementation options would necessitate hiring external managers with a High Yield Bond mandate and additional fixed income staff.

HIGH YIELD BONDS

BACKGROUND

At the Asset Allocation Workshop completed by the California State Teachers' Retirement System (CalSTRS, System) Investment Committee in August 1999, it was decided that further exploration of the diversification and potential return enhancement benefits of its fixed income exposure be reviewed. To increase diversification and add incremental return to the System's fixed income holdings, staff was directed to review and report on the inclusion of High Yield Bonds. CalSTRS has never made an allocation to High Yield Bonds. High Yield Bonds are those bonds rated below investment grade (i.e., bonds rated below Baa3/BBB-), as recognized by the two major rating agencies: *Moody's* and *Standard & Poor's*. The universe of High Yield Bonds includes bonds rated anywhere from Ba1/BB+, to as low as C/D, meaning highly speculative as to whether the bond will pay either principal or interest.

The asset allocation adopted in September 1999, allocated 26% of the System's total assets to domestic fixed income. As of December 31, 1999, the market value of the Fixed Income Portfolio was approximately \$25 billion, with \$9.0 billion in Treasury and Agency Securities, \$8.0 billion in Mortgage-Backed Securities (MBS), and \$8.0 billion in investment grade Corporate Bond Securities. The Fixed Income Portfolio is of very high quality, in that nearly 70% is either government-guaranteed or rated AAA.

One of the 1999/00 goals and objectives established for the Investment Branch is to explore, evaluate, and present a report on the inclusion of High Yield Bonds in CalSTRS' Fixed Income Portfolio. As a first step in that process, staff and Pension Consulting Alliance (PCA) made a presentation to the Investment Committee in November 1999, that included an historic overview of High Yield Bonds, along with the role they play in the fixed income markets.

The rationale for the consideration of High Yield Bonds was reduced to a few key areas. A review of the size and depth of the High Yield Bond market was conducted and found to be adequate for the participation of a fund the size of CalSTRS. On an absolute basis, the High Yield Bond market had grown from approximately \$240 billion in 1989, with 610 issuers, to an estimated \$500 billion, with over 2000 issuers in 1999.

Investing in the High Yield Bond market presents an opportunity to earn higher risk-adjusted returns when compared to the domestic investment grade fixed income market. A comparison was made of the risk-adjusted returns associated with the High Yield Bond market, as represented by the Salomon Brothers' High Yield Market Index, with those of the Salomon Brothers' Large Pension Fund Index (i.e., CalSTRS' current fixed income performance benchmark). Over the past 5-year and 10-year periods, the High Yield Market Index outperformed the Large Pension Fund Index on a risk-adjusted basis, indicating that

investors have been rewarded, over a longer time horizon, for holding High Yield Bonds. Over the 1-year and 3-year time periods ending June 30, 1999, however, the Large Pension Fund Index, representing investment grade quality bonds, did outperform the High Yield Market Index on a risk-adjusted basis.

High Yield Bonds have the potential to further diversify the risk of the Fixed Income Portfolio. Diversification spreads the exposure to risk across several offsetting factors, rather than concentrating on one dominant and possibly volatile factor. High Yield Bond returns have been less correlated with other segments of the bond market, such as investment grade Corporate Bond Securities, U.S. Treasury and Agency Securities, and MBS, than those segments have been correlated with each other.

The November 1999 presentation also included a sensitivity analysis conducted by PCA, which quantified the impact on CalSTRS' Fixed Income Portfolio by including High Yield Bonds. PCA tested how mixes of domestic Investment Grade Bonds and High Yield Bonds altered the risk and return characteristics of an otherwise broadly diversified investment grade portfolio. The study showed that adding High Yield Bonds to the CalSTRS Fixed Income Portfolio had a positive impact on the return-risk profile of the Fixed Income Portfolio.

Finally, in order to gain a perspective of how similar funds utilize High Yield Bonds within their portfolios, PCA compared thirteen of CalSTRS' peers, with respect to their high yield mandates. PCA found that approximately one-half of the funds have a dedicated High Yield Bond program. Of those, three are internally managed and four rely on external management, with all programs being actively managed.

The research conducted up to this point has been broad in scope, and has demonstrated that there is the potential for High Yield Bonds to add value to the CalSTRS domestic Fixed Income Portfolio. As a result, at the conclusion of the November 1999 presentation, staff and PCA recommended that further analysis be conducted regarding implementation options for High Yield Bonds for the Investment Committee's consideration and direction.

IMPLEMENTATION OPTIONS

If the Investment Committee were to approve an allocation to High Yield Bonds, there are several key implementation considerations that must be addressed. These key implementation considerations include the following:

1. The asset allocation decision – What percentage of the Fixed Income Portfolio should be in High Yield Bonds?
2. The style of management – Should the assets be managed on an active or passive basis?
3. The performance benchmark selection – What might an appropriate performance benchmark be, and
4. The management decision – Should the assets be managed internally, externally, or a combination?

Asset Allocation

CalSTRS has established a strategic asset allocation target of 26% for the Public Debt asset class, with a tactical range of 23% to 29%. As part of the initial presentation last November, PCA conducted a sensitivity analysis in order to quantify the impact of including High Yield Bonds in CalSTRS' Fixed Income Portfolio. High Yield Bonds were substituted directly for a portion of the overall CalSTRS Fixed Income Portfolio, with a maximum constraint of 5% of CalSTRS' fixed income assets allocated to High Yield Bonds. The 5% figure is consistent with current market proportions, as measured by broad-based fixed income indices that incorporate High Yield Bonds. It should be noted that, if left unconstrained, the model would continue to add High Yield Bonds. The optimal mix (as constrained) versus the current bond portfolio, along with the risk/return profile, appears below:

Asset Class	Current Policy	Optimal Mix
High Yield Bonds	0%	5%
Aggregate Investment Grade Bonds	100%	95%
Expected Return	5.33%	5.41%
Expected Risk (Holding Period Std Dev)	3.86%	3.82%

Adding High Yield Bonds to the CalSTRS Fixed Income Portfolio had a modest positive impact on the return-risk profile of the Fixed Income Portfolio. As the table above illustrates, the expected average annual return rose by eight basis points, while risk declined slightly.

Management Style

Active and passive management lie on a spectrum. Strictly passive management, on one end, is represented by total replication of the issues within the performance benchmark, designed to mirror the benchmark return and risk profile. Active management, on the other end, is represented by security selection designed to achieve returns that exceed the benchmark return, with or without a similar risk profile. Management styles within the spectrum, depending upon their risk/return objective, take on various characteristics of the two extremes. The decision regarding the choice between active and passive management is influenced by the pricing efficiency of the market being considered. Pricing efficiency is used to describe a market where prices at all times reflect all available information that is relevant to the valuation of securities.¹ Although the size and breadth of the High Yield Bond market are such that an investor the size of CalSTRS can participate in a meaningful way, there are difficulties in managing High Yield Bonds on a strictly passive basis. These difficulties include the broad range of bonds in the universe. Not only does the universe range in terms of quality (i.e., from BB+ to CCC), but also by sector, coupon, and

¹ Fabozzi, Frank J., (1993). "Active Bond Portfolio Management." *Bond Markets, Analysis and Strategies*, 2nd Edition. Prentice-Hall, Inc.

maturity. Furthermore, this universe of bonds is changing constantly. The numerous bonds outstanding at any point in time are subject to call provisions, sinking funds, defaults, and upgrades and downgrades into and out of the High Yield Bond market. In addition, significant problems can arise in the trading and pricing of individual bond issues because the major secondary market for most bonds is an “over the counter” market with no reporting requirements and many bonds that are subject to infrequent trading.² As a result, managing High Yield Bonds on a strictly passive basis is virtually impossible.

Performance Benchmark

Next to the asset allocation decision, the selection of the performance benchmark will have the most financial impact on the investment portfolio. There are several indices available to investors that measure performance in the High Yield Bond market. Virtually all of the major Wall Street firms involved in either the issuance or trading of High Yield Bonds sponsor a benchmark. When considering benchmark construction itself, there are a few very important criteria to consider. First, the benchmark should be clearly defined and measurable. In other words, the benchmark should be published and updated on a daily or weekly basis and the pricing should be done in a consistent manner. Next, the benchmark must also be investable. By investable, the manager should always be able to invest in the benchmark portfolio or engage in individual security selection. Finally, any benchmark should be appropriate for the asset class and priced in a market setting rather than off a matrix or by appraisals without market pricing and comparisons.

With these benchmark construction axioms in mind, staff compared each of the major indices from the High Yield Bond universe. The analysis focused primarily on the structure of each index, but also included a comparison of the returns and volatility over a ten-year period. High yield portfolio managers were also contacted in order to get an idea of how they felt their particular index served as a performance benchmark. In other words, was their index an accurate measure for judging portfolio performance?

Based upon this analysis, the Salomon Brothers High Yield Market Cash-Pay Index (SBHY Cash-Pay Index) not only met the criteria for an appropriate performance benchmark for high yield portfolios, but also allows CalSTRS a few unique opportunities not available in other benchmark indices. First, the SBHY Cash-Pay Index includes over 1,300 high yield issues with one year or longer to maturity, with par amounts greater than \$100 million, and excludes preferred stock and deferred coupon bonds. The duration of the index is comparable to other high yield indices and includes fewer lower rated bonds. Furthermore, index returns on a risk-adjusted basis over the past three, five and 10-year periods have been comparable. In addition, CalSTRS uses the Salomon Brothers Yield Book computer technology to model its current fixed income holdings. This technology allows staff to create scenarios, estimate returns, and to monitor the effects of various trading and market strategies. As a result, this technology can be used to minimize tracking error, estimate returns, and assess the impact of High Yield Bonds on the entire Fixed Income Portfolio.

² Reilly, Frank K. and David J. Wright (1999). “An Analysis of High Yield Bond Indices.” *High Yield Bonds*. McGraw Hill.

Asset Management

The choices regarding the management of the High Yield Bond assets under consideration include internal management, external management, or a combination of both. The issue primarily involves expertise and competition, along with the underlying philosophy of the System with respect to internal management. As described earlier, currently there is no allocation to High Yield Bonds at CalSTRS. Although CalSTRS has managed its fixed income assets internally for over a decade, approximately 30% of which are comprised of investment grade Corporate Bonds, there is no specific High Yield Bond expertise internally at this time. The need for expertise, combined with the desirability of competition, suggests a structure including multiple external managers. The decision to manage a portion of the High Yield Bond portfolio internally lies in the long-term philosophy of the System toward the benefits/costs of internal management. While there are currently two Fixed Income staff members assigned to the Corporate Bond Portfolio, it is anticipated that the additional analysis required for a dedicated High Yield Bond Portfolio would necessitate the addition of up to two more staff.

RECOMMENDATIONS

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